

Pennsylvania Health Bulletin

No. 41.

HARRISBURG, PA.

DECEMBER, 1912.

PUBLISHED MONTHLY BY
THE STATE DEPARTMENT OF HEALTH
SAMUEL G. DIXON, M. D., LL. D.,
COMMISSIONER.

CONSERVATION OF HEALTH

ADDRESS DELIVERED AT THE FOURTH ANNUAL BANQUET OF THE DUQUESNE CHAMBER OF COMMERCE.

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Mr. Chairman and Members of Board of Commerce:

Preventive medicine is a difficult subject to superintend. The old adage "An ounce of prevention is better than a pound of cure," is generally believed but rarely practiced.

We have good laws in Pennsylvania to regulate public as well as private hygiene, yet to follow up the latter would require about one officer of the law to every citizen. If this be in a general way true, what becomes apparent? First, we must educate the people how to take care of themselves and others and we must also raise the moral tone of our people so that they will realize the necessity of being their brothers' keepers.

All publicists, all economists realize that the prevention of disease in the case of human beings, in the case of animal life, and also—and this we do not often take into account—in the case of vegetable life, is the only substantial foundation of modern civilization that makes for advance and improvement all along the line. It is not only that diseases that might easily be prevented cause untold physical and mental suffering and untimely death, but they so reduce the vitality of the individual and the family that great economic losses result, seriously affecting our social and industrial life and reducing our efficiency to an alarming degree. Everywhere there is a desire to make each individual unit in the industrial and social world more efficient. The whole public school system is based on the idea of making every citizen much more efficient through educa-

tion than were his forefathers. All our manual training, all our technical institutions, all the special practical training that one gets in forge, and factory and farm, is toward higher efficiency. Both the United States Government, through its Agriculture Department, and all the States through their Agriculture Colleges, are doing everything they can to increase the efficiency of every square foot of soil, to make a greater showing for every quart of milk, every pound of beef, every bushel of wheat, and every ton of hay. But all these efforts are in vain unless the health of all the factors concerned in manufacture, agriculture and transportation is kept on a high level and protected from those diseases that destroy efficiency at the very root.

In the practical work of agriculturists, horticulturists and dairymen the necessity of fighting diseases which destroy their crops and menace their herds is borne in on them every day. But methods of procedure are not so clear to everyone and many do not realize not only what they should do in the case of their beasts, but in the case of themselves, to prevent their home, their dairy or their stable from being a menace not only to themselves but to the whole neighborhood.

Everyone should realize, and today more and more practical people, as the phrase goes, are realizing the situation, the need of quarantining and disinfecting animals and stables, and carrying on the same preventive measures for animal and vegetable life which is affected with infectious diseases as the science of today tells us we should do for human life when the human economy is affected by transmissible diseases which may lay waste the whole community and put an embargo on all social, commercial and industrial work, not only to a great physical loss, but to a money loss which runs up into billions of dollars.

As a matter of fact, the Federal Government has done a greater educational and preventive work toward preventing diseases of animals, vegetables and forestry than she has for man himself. This fact has placed a blot upon the escutcheon of our country.

When speaking to farmers upon the question of the preservation of their own health we first remind them of their full realization of the necessity of furnishing the proper sort of food stuffs so that their live stock may live and develop into large and healthy, marketable, assets; that their cows to be profitable must have the proper food stuff in order that they may retain their health and produce a reasonable quantity of rich and wholesome milk for human consumption, and that they have learned the need of breeding from healthy plants, healthy animals, and healthy seeds. Even without an acquaintance with the larger sciences of hygiene and sanitation farmers are aware of the value of pure food, fresh air, and sunlight (one of the greatest

germicides that can be found), in developing varied industries and in keeping their stock in condition. Animal and plant life, and above all human life, make certain demands for heat, light and water. When we have learned to realize what preventive medicine and what preventive hygiene mean for our daily business, we shall understand that everything which the State authorities can do to teach us and help us should be welcomed.

In this you are not working alone, but you are engaged in what is a world-wide movement, since communication—easy communication—these days has made all the world brothers and what is done in Russia, or Germany, or Italy, or France or England, applies to us as well as over there. For, unfortunately, we sometimes import diseases as well as importing ideas to prevent and combat disease. Everywhere, however, great scientists are giving their attention to this subject of diseases of human beings, of plants and of animals both in relation to individuals and in relation to the great masses of the population and herds and crops. For instance, everybody knows that an “epidemic” is the spread of a contagious disease among human beings, and that the “epizootic” is the spread of a contagious disease among animals, but few people are familiar with the term “epiphytic,” which means the same thing in the vegetable kingdom. Yet this is as common as the first two, if not more so, and is responsible for enormous losses of wealth, for terrible suffering and illness among thousands, and even for economic and political disturbances and for great popular migrations. A case in point is the potato-blight that fell upon Ireland in 1845, which directly influenced the flow of people to our own shores. National quarantine already exists, a recent case being that of the exclusion of the cherry-trees presented by the Japanese Government to this country a few years ago. The Institute of Agriculture in Rome, therefore, proposes shortly to invite the various governments to unite officially to form a universal commission of “phytopathology” or the study of plant maladies. Mr. Louis Dop, who represents France at this Institute, presented a report on the subject at the recent Congress of Comparative Pathology, held in Paris, an abstract of which shows that the maladies “produced by insects or by cryptogams often become a scourge whose ravages extend over vast regions. The phylloxera in France caused losses of billions of francs. Similar results were caused in Italy by the first invasion of oidium and grape mildew, when the specific anticryptogamic properties of sulphur and salts of copper were not yet known. At a more recent date emigration from Central and Southern Italy rose to alarming proportions following the disasters produced by the olive-fly. The sugar-cane disease ruined certain colonies of the Netherlands, as that of the coffee-tree ruined Ceylon.

In 1891 Prussia lost more than \$100,000,000 from grain-rust. The Department of Agriculture of the United States mentions that the losses caused by cryptogams in 1887 to timber, fruit and grain mounted to about \$200,000,000."

Mr. Dop further cites the estimate of a well-known botanist of the Kew Gardens in London that the annual loss of crops from plant diseases throughout the world varies from \$750,000,000 to \$1,000,000,000 while he himself opines that to double these figures would be nearer the truth, because of the innumerable losses of amounts too small to be included in general statistics, but huge in the sum total. The idea of an international fight against epiphyties was formulated for the first time in 1891, at the International Congress of Agriculture, at the Hague, and repeated at the 1900 Congress in Paris and in 1903, at Rome, an international commission for studying plant maladies was formed. Its seat is at Berlin, and it is composed of representatives from various countries." From this you can see that preventive medicine including human, animal and vegetable is all part of a great movement in which all the civilized nations are taking their place in order to advance the conditions under which we live and move and have our being.

Naturally, the only reason that we wish to make ourselves healthier, our animals healthier, and protect our plants from disease, is to add to the general comforts of human life. We are guaranteed by the Constitution of the United States, which proposed to "improve the general welfare," and to give everyone a chance for the "pursuit of happiness," certain inalienable political and personal rights. But all these are of no avail if disease invades the home and the community, and too often we forget when, in the home, or in the community, or in the State, we are asked to set up certain preventive conditions, to quarantine or be quarantined, to vaccinate or be vaccinated, what are our rights and where our rights end and the rights of others begin, and also that for the good of all we must submit to those things which the science of the day has proved practical and of value, that will promote your health and my health, and moreover prevent us from being a menace to anyone. In the hurry of every-day work, and in doing what you can to make your family comfortable and happy, very few have any time to study these questions for themselves and to get at the laws back of the methods which will enable them to preserve their own health, to rear healthy children so that they may grow up with sound bodies, sound minds, and dispositions that will enable them to be profit to themselves, to their families, to society and the nation. Thoughtful men, however, are at work for you in these particulars; they are laying down the general conditions under which the individual health and the communal

health may be promoted. Everywhere specialists are looking into the questions of health marriage relationship, of the menace of special diseases to the house and home and countryside, and in addition to this, everywhere the problem of the healthy home with proper air space both in the cellar and in bed rooms, with proper amount of sunlight, is being looked into. There are as you all know, the model barn, and the model farm, and the model home, and the model factory.

Conditions, therefore, which seemed visionary only a few years ago are now being realized everywhere, in the crowded city as well as in the country. And it must not be forgotten that the country has special problems of housing and living as well as the city. The mere fact that one is not crowded in the suburbs or country does not mean that the house in which you put your family, nor the stable in which you put your horses and cattle, is at all the kind of shelter that will secure the best results for family and animals.

We hear on all sides and know at first hand of the huge amounts of money that are spent by the great cities all over the world to secure pure water for the millions concentrated in restricted areas. The most stupendous ruins in Italy, the wonderful Roman aqueducts that cross the Campagna near Rome, testify what the ancients thought of the need of pure water thousands of years before they knew anything about the cause of disease or what were the germs in the impure water that carried off those who drank the water by reason of the typhoid and cholera germs and other water-borne diseases that have been so long a menace to mankind and civilization. It is astonishing that while everyone is supposed to know this, that too often in the country districts the well, the water of which is sparkling but full of disease germs, since they are invisible, is utilized for the house supply, although the water that seeps through the ground into the well may be polluted by house sewage and so a cause of disease whenever the conditions favor it. To-day we are spending millions everywhere to secure good water and to prevent disease, and both the nation, the State, and the individual should realize that this is a primary necessity, and that we should neither allow the pollution of our streams, nor the pollution of our individual sources of water supply.

As it is with pure water, so it is with pure food. It is only recently that one of the medical inspectors of our Department delivered a lecture pointing out how necessary it was to have a pure milk supply, since milk can easily carry transmissible diseases such as typhoid and diphtheria. This freedom of milk from disease germs is but a part of the fight that is being made by you and for you that milk and all our foods should be put to the standard, and that we

should not be buying poisons when we are buying things for the support of life. As everyone knows, in every State, and in Washington, there are elaborate agencies for securing for the people pure food stuffs, food unadulterated, which contain the proper proportion of proteins, carbohydrates, fats and salts necessary to build and keep up healthy bodies. Indeed, it must be clear to everyone that though the great mass of us are exposed to disease carrying germs, all do not yield and do not fall victims to the disease because their general level of health causes them to resist where those whose vitality is lessened by impure foods, by improper housing and lack of ability to get fresh air, fall an easy victim. Aside, therefore, from any other question of prevention or treatment, everyone ought to know that one of the great protections against that great scourge, tuberculosis, is robust health, proper and pure food, plenty of outdoor air, sunshine and moderate physical exercise. It is to tempt fate, however, to get in touch with communicable diseases, even where resistance may be great, as for most of us the way to avoid these diseases is to keep away from those who infect or can infect, and so prevent, in advance, the attacks which reduce the individual efficiency and that of any community.

For whatever resistance good health may produce in anyone may prove of small assistance in certain cases, and, in a disease like smallpox the only safety for the individual or the community, aside from the isolation of the diseased, is to have had resistance built up by vaccination. Whatever those who have not looked into the subject may think about it, all that any thoughtful citizen has to do to convince himself that in this way lies safety for himself and the community, is to know what Germany has done for its army through vaccination and what the United States did in such disease-ridden places as Porto Rico and Cuba. To-day great specialists are working on the subject of producing immunity through vaccination or through special treatments for various communicable diseases, through the use of the so-called antitoxins and other allied treatments. What has happened in the case of the dread disease of diphtheria, in which the death rate has been so largely reduced through antitoxins, may be worked out for other diseases. In the matter of diphtheria, as our own records show, we can, however, cure it almost every time if we get the antitoxin introduced early enough. In scarlet fever we do not have any antitoxin to protect our children against this dread disease. Strict quarantine is our only protection. People sometimes have an odd way of looking upon quarantining and object to being placed to the inconvenience that their neighbors and the general public may have their personal liberty to go about their usual vocations. Those who object to having scarlet fever quarantined might as well object to the police placing a would-be murderer in jail.

Measles is a very communicable disease and one from which Pennsylvania lost more children in 1911 than she did from scarlet fever. Measles is not infrequently followed by tuberculosis, therefore every care should be taken to avoid it in childhood. The danger of contracting it is decreased as we grow older.

Many of these diseases people have accepted as if they, as the phrase goes, "had to have them" and had "to go through them" and it is due to this carelessness and this attitude that we have allowed preventable diseases to so reduce our efficiency. Even to-day there are large portions of the State and of the nation where malaria is taken as a matter of course, and people expect to have the "shakes" and chills and fever as if nothing was known about the disease, while now we know that malaria is transmitted to human beings by the bite of an infected mosquito, which mosquito contains in itself the malaria parasite. It has been found out all over the world where malarial and tropical diseases exist, which are transmitted by mosquitoes, such as yellow fever, that human beings can be protected from these debilitating diseases by screening out the disease-bearing mosquitoes from the homes, and in some districts by getting rid of the pests entirely by a proper draining and special attacks on their breeding places. People too often forget, moreover, that the mosquitoes which are annoying them do not come from large swamps which may not be capable of treatment or of being drained, but from small pools in the garden, in the farmyard, or stagnant places on the grounds which breed enough insects not only to annoy, but to carry disease. Mosquitoes love these little pockets of stagnant water in which to breed, and I have often been told by people that they had done everything to rid their homes of mosquitoes and had failed, when, upon a visit to their homes or farms, I have found rain barrels alive with the larvae, or tomato cans, or old bits of crockery, saucers or flowerpots, etc., filled with water and the mosquito larvae and the pests swarming everywhere.

There is now going on all over the country, however, a campaign not only against the mosquito, but against the house fly, which carries the germs of typhoid fever and other diseases. One species of fly, the biting fly, found mostly in or near horse stables, is now believed to produce infantile paralysis. If manure pits should be properly handled or the manure used as soon as practicable, or treated in such a way as to kill the eggs or larvae of flies, the fly pest would be reduced to a minimum, for the flies breed in stable yard refuse. Since it is not likely this will be done, the only way to reduce the fly pest and to further protect yourself against disease is consequently through a thorough screening of all our homes. If any of you have any lurking doubt as to the connection between flies and mosquitoes

and such diseases as malaria, yellow fever and typhoid, all one has to do is to study the record of the health department of the Panama Canal builders. For after all, the great triumph for the United States is not so much the exhibition of one of the greatest engineering achievements ever known in the work now going on in Panama, but in the fact that this work is being carried on under conditions in which every man is secured an opportunity to work on his job without fear of death or disease. This is the marvel which has astonished the civilized world. It was said of the French methods in Panama when the French company was endeavoring to build a canal under de Lesseps, that for every railroad sleeper laid, for every ton of earth excavated there was a grave,—a grave dug and a workman buried. Now the Panama Canal zone is healthier than most American cities. Thousands of Americans are flocking there to see the Canal before the water is turned on. And if they do not do anything else when they come back, they will be of great service to the country at large when they tell their friends and neighbors not only how gigantic are the gates of Gatun Dam, but how the United States' sanitary corps has made a region which was famous throughout the world as the most deadly region which civilized people had to travel through, practically free from the communicable diseases that once flourished there without any prevention and were taken as a matter of course.

When one thinks that the people of Pennsylvania until a few years ago quietly submitted to the common enemy typhoid fever making 24,471 of our people in Pennsylvania sick each year and killing 4,000, one realizes how slow we are to adopt methods which in this State and elsewhere have been found perfectly practicable to prevent these diseases which we do not need to have unless we are careless and do not live up to the sanitary laws and regulations at the command of every civilized community. What is being done in Panama can be repeated all over the United States, but we must look at the thing with a little different attitude from what we formerly did, since too often it is assumed that these diseases just had to be, and because they were so common there was no effort to do anything with them. And yet if we had lost fifty lives from yellow fever in Pennsylvania, at the same time we were losing thousands from typhoid and diphtheria and other like diseases, the whole State would be in an uproar and people would be fleeing from it. Or, if an enemy had landed on our shores and shot down a few people, the whole nation would have been in arms. But when it comes to preventable diseases we sit down and let them kill us off by the thousands every year, the typhoid scourge being a particular case in point.

However, in Pennsylvania as in Panama we have seen a new light. As you know, in 1905 Dr. Charles B. Penrose of the University of Pennsylvania awakened to the fearful condition of our streams in the State which was causing so much suffering, sorrow, death and interference with our industries, and prepared a bill creating a Department of Health placing the responsibility of correcting the filthy habit of polluting our streams and killing our people upon the Governor, Attorney General and the Commissioner of Health and had it presented to the Legislature of that year. It was appreciated by the General Assembly and the Governor and became a law of our great State. For over seven years the Department of Health has been laboring under said Act of Assembly to correct the great evil as fast as practicable so that the change might be brought about by as little expense to our people as possible and without interfering with our industries. Today I am happy to report that instead of having in 1912, 24,471 cases of typhoid fever, we have only 9,679, and that instead of having 4,000 deaths we have only *one* thousand. Our statistics in other diseases also show a great reduction in deaths.

These most gratifying results to those who have had the great responsibilities have only been possible by educating the people so as to get their co-operation and the following up the different diseases by the divisions of our Department. Laying aside the saving of suffering, sorrow, doctors' and nurses' bills, the work in typhoid fever alone means a saving to the State of some \$15,000,000 a year.

Now, gentlemen, what we ask of you is to liken your work to ours and before you leave here make up your minds to co-operate with us in trying to improve the physical bodies of our men and women and save them from unnecessary sickness and death.

It is in your power to help us teach the people what our work means to them and you can also influence your local Boards of Health to keep pace with us, yes, even lead us. We could not have shown the grand results obtained if many of the local Boards of Health had not done magnificent work. There is much to be done, however, to bring up many ineffective Boards of Health which still permit disease to have its own way. As civilization has advanced and transportation facilities by land and water have been extended, the development of every nook and corner of the State has followed, in proportion as the resources of the district warranted, until now, Pennsylvania, with her 30 cities, 930 boroughs, and 1500 odd townships and 8,000,000 of people, is thickly populated. Contemplating the fact that the State's noted natural resources are be-

coming rapidly exhausted, that the deposits of natural oil and gas are diminishing annually, and that the time when her anthracite and bituminous coal fields will cease to supply the demands of the country is easily forecasted, it does not take the sober mind long to grasp the idea of the importance and necessity for the welfare of the people of the Commonwealth of the adoption of a plan of conservation of soil, water resources and last but not least, health in its broadest sense so that man and those organic things upon which his existence depends may develop to their fullest perfection. We must all be brought to recognize that we have been living off our principal by selling and consuming our coal, rock oil, iron and other valuable natural deposits which are never to be formed again, therefore, we must soon turn to the productiveness of our people as France has and live upon our interest; must intensify the productive power of our people, which will become more and more necessary as our natural resources are consumed.

HEALTH BULLETIN SCHEDULE.

No.	Issue.	Subject.
1.	July, 1909,	Disease-Breeding Power of House-flies and Methods of Prevention.
2.	Aug., 1909,	Similarity of Barium Carbonate Poisoning and Rabies in Dogs.
3.	Sept., 1909,	The Family Physician.
4.	Oct., 1909,	Legal Rights and Tuberculosis. The Public Drinking Cup.
5.	Nov., 1909,	Germicidal Effect of Water from Coal Mines and Tannery Wheels upon Bacillus Typhosus, etc.
6.	Dec., 1909,	Report on the Effect of Repeated Injections of Products of the Tubercle Bacillus on Lymphatic Organs.
7.	Jan., 1910,	Little Dangers to be Avoided in the Daily Fight Against Tuberculosis.
8.	Feb., 1910,	Object to be Attained by the Medical Inspection of School Children.
9.	Mar., 1910,	Conservation of Human Life in Penna. 'The Results of Four Years' Work of the Department.
10.	April, 1910,	Biological Treatment of Tuberculosis as Conducted by the Department.
11.	May, 1910,	The Bubonic Plague, its Origin, Progress and Means of Prevention.
12.	June, 1910,	A Retrospective Glance. 1. Susceptibility to Tuberculosis. 2. Purity of Milk. 3. Bovine Tuberculosis.
13.	July, 1910,	Experiments on Tubercle Bacilli, Old Tuberculin and the Fluid of Dixon.
14.	Aug., 1910,	The Conservation of Child Life in Pennsylvania.
15.	Sept., 1910,	Obedience to Nature's Laws the Primary Defence against Disease.
16.	Oct., 1910,	The Conservation of Infant Life in Pennsylvania.
17.	Nov., 1910,	Pennsylvania's Standing Army of Health.
18.	Dec., 1910,	Producers and Consumers. Pennsylvania's Tuberculosis Schools.
19.	Jan., 1911,	Effect of Injections of Taurin upon Tumors of Mice and Dogs.
20.	Feb., 1911,	Some Duties, Ideals and Opportunities of the Country Doctor.
21.	Mar., 1911,	Malaria; How it is Caused and How to Get Rid of it.
22.	April, 1911,	Health.
23.	May, 1911,	The Common Fly, How it Develops, why it must be Destroyed and How to Destroy it.
24.	June, 1911,	Effects of Tubercle Products on Epithelium.
25.	July, 1911,	Five Years of Tuberculosis in Pennsylvania.
26.	Aug., 1911,	Organization of the Penna. State Dept. of Health.
27.	Sept., 1911,	Tuberculosis in the Country as well as in the City, A Disease of Bad Housing and Lack of Nourishing Food.
28.	Oct., 1911,	The Preparation of the Biologic Products Distributed by the Pennsylvania Department of Health.
29.	Nov., 1911,	The Foundations of State Medicine.
30.	Dec., 1911,	Experiments Tending to Show the Infrequency of the Occurrence of Tubercle Bacilli in the Urine of Patients Suffering from.
31.	Jan., 1912,	The Baby the Most Important Problem in Modern Life.
32.	Feb., 1912,	Insects.
33.	Mar., 1912,	The Opportunity for the Trained Nurse in Sanitary Service.
34.	April, 1912,	How to Organize a Baby-Saving Show.
35.	May, 1912,	Drowning.
36.	June, 1912,	The Health of Suburban Residencees.
37.	July, 1912,	Report of the Austin Disaster.
38.	Aug., 1912,	Getting Close to the People. Caring for the School Children.
39.	Sept., 1912,	Modern Medicine and the Physician.
40.	Oct., 1912,	Battling for Life at Mont Alto.
41.	Nov., 1912,	Tuberculin.
42.	Dec., 1912,	Dr. Dixon's Address at Duquesne, Pa.
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